



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,228	10/30/2003	Richard L. Sandstrom	2002-0048-02	3385

21773 7590 09/06/2005

CYMER INC
LEGAL DEPARTMENT
17075 Thornmint Court
SAN DIEGO, CA 92127-2413

EXAMINER

DETSCHER, MARISSA

ART UNIT	PAPER NUMBER
----------	--------------

2877

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No:

10/699,228

Applicant(s)

SANDSTROM, RICHARD L.

Examiner

Marissa J. Detschel

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/30/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 2, 4, 5, and 7-9 is/are allowed.
- 6) ☒ Claim(s) 10 and 11 is/are rejected.
- 7) ☒ Claim(s) 3, 6, 10 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: The word "laser" should be inserted after "He-Ne" on page 2, 2nd full paragraph, line 3. The phrase "is a" after FIG. 2 in line 2 under the Brief Description of the Drawings heading on page 3 should be removed. The phrase " $(\lambda/8 !)$ " in line 3 of the second paragraph under the heading Examples of Cavity Error Measurements on page 8 should read as " $(\lambda/8)$."

Appropriate correction is required.

Drawings

The drawings are objected to because of the inability to distinguish between the two lines for the Horizontal Slice and the Vertical Slice of the graphs provided in figures 4B, 5B, 6B, and 7B. The lines both appear as the same straight line form, making it impossible to determine which line is used to represent the Horizontal Slice, and which line the Vertical Slice.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Figure 6A is disclosed as being an image with a central colored region and a color scale in the specification on page 8, line 3 of the last paragraph to page 9, line 2 of the first paragraph. Based on the information disclosed in the specification, these figures provide an understanding of the Applicant's system and method, and therefore the Examiner was able to use this information during examination. Color photographs and color drawings are not accepted unless a petition filed under 37 CFR 1.84(a)(2) is granted. Any such petition must be accompanied by the appropriate fee set forth in 37 CFR 1.17(h), three sets of color drawings or color photographs, as appropriate, and, unless already present, an amendment to include the following language as the first paragraph of the brief description of the drawings section of the specification:

The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the Office upon request and payment of the necessary fee.

Color photographs will be accepted if the conditions for accepting color drawings and black and white photographs have been satisfied. See 37 CFR 1.84(b)(2).

Claim Objections

Claim 3 is objected to because of the following informalities: A spherical wavefront error of less than 23 uR is recited in line 2 of this claim. A divergence of about

Art Unit: 2877

25 μ R is disclosed in the specification on page 7, lines 3-4 of the last paragraph. It is uncertain as to whether this value should be in units of uR or μ R and if the limiting numerical value should be 23 or 25.

Claim 6 is objected to because of the following informalities: The limitation "said screen" is recited in this claim, and there is insufficient antecedent basis for this.

Claim 10 is objected to because of the following informalities: The words "test etalons" in the second line of part E of the claim should read "test etalon." There is only one test etalon disclosed in part B of claim 10.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Ordell (USPN 4,969,744).

In regards to claim 10, Ordell discloses an etalon (E) mounted on a rotational stage (table that rotates (50)). While the etalon rotates, it is illuminated with a beam from a laser light source (L) that is collimated by collimating optics (a lens (2) and an aperture (3)). A detector (D) is positioned to receive images of interference fringes that are contingent on the reflectivity of the etalons (Figures 2 and 5; column 5, lines 31-51).

Art Unit: 2877

Regarding claim 11, Ordell discloses a system that rotates the etalon through small angles of known values in conjunction with a series of synchronous clock pulses. These pulses are utilized for the purpose of interpolation between fringes (interference patterns). (column 4, lines 29-35) The graph shown in figure 2 for the readout of detector D shows properties of interference fringes for set angles (axis labeled X) by providing readout of the intensities (axis labeled I) for each angle.

Allowable Subject Matter

Claims 1, 2, 4, 5, and 7-9 are allowed.

Claims 3 and 6 are objected to due to the minor informalities as stated in this Office action, but would be allowable if rewritten to overcome these informalities.

Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement for reasons for the indication of allowable subject matter:

As to claims 1 and 12, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method for testing etalons by analyzing interference patterns (fringes) to estimate the uniformity of etalon spacing, in combination with the rest of the limitations of claims 1 and 12.

Claims 2, 4, 5, and 7-9 are allowable as being dependent upon the allowable subject matter in claim 1.

Additional Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art made of record is Shiono (USPN 6,813,081 B2) and Neily et al. (USPN 6, 819,438 B2).

Shiono discloses a method for producing etalons that involves a step to evaluate the flatness and parallelism of the etalon using an interferometer and an autocollimator.

Neily discloses a method for determining the uniformity of an optical component, such as an etalon, by changing the angle of interference of the incident light.

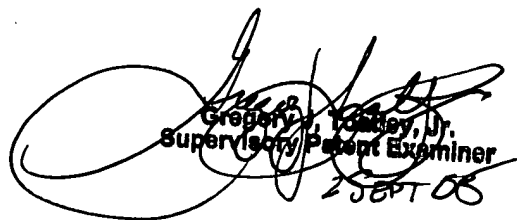
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marissa J. Detschel whose telephone number is 571-272-2716. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on 571-272-2059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJD


Gregory J. Tostley, Jr.
Supervisory Patent Examiner
25 SEPT 08